CLAIMS

1. A compact non-contact electrical switch for use in an electrical box mountable in a wall and having an electrical circuit passing therethrough comprising:

means for detecting a presence of an object adjacent to the switch and for generating an output signal;

a central processing unit connected to the presence detecting means and having means for receiving the output signal therefrom, and having signal processing means for calculating a power output in response to the output signal for generating a control signal for controlling power supplied to the electrical circuit.

2. The switch of claim 1 wherein the detecting means is a capacitive sensor.

3. The switch of claim 1 further comprising an AC period zero cross detector and a triac in the electrical circuit and wherein the control signal is a delayed triac trigger pulse for controlling power supplied to the electrical circuit.

4. The switch of claim 1 further comprising a relay in the electrical circuit, wherein the control signal activates the relay for controlling power in the electrical circuit.

5. The switch of claim 1 further comprising an A/D converter to convert the output signal from the detecting means to a digital value.

6. The switch of claim 1 further comprising a differentiator for receiving the output signal and for transmitting the output signal only on a change in a presence before the switch.

7. The switch of claim 1 further comprising a comparator to compare the output signal to a threshold level for transmitting a first data bit only when the output signal exceeds the threshold level.

8. The switch of claim 1 wherein the signal processing means is a control logic converter where the amount of power to be supplied is determined as a function of the output signal.

9. The switch of claim 1 further comprising a delay counter synchronized with an AC period via an AC period zero cross detector, to generate a time delay after AC period zero crossing proportional to the output signal.

10. The switch of claim 1 wherein the control signal varies the power in the electrical circuit to provide a dimmer function.

11. The switch of claim 1 further comprising a power supply for the switch.

12. The switch of claim 11 wherein the power supply comprises a semiconductor element coupling a capacitor directly to a line voltage, such that when the line

voltage is below a certain level, the capacitor is charged

13. The switch of claim 12 further comprising a regulator connected to the capacitor to regulate the line voltage.

14. The switch of claim 1 further comprising an air gap switch engaged with the non-contact electrical switch, a movable cover plate engaged to the air gap switch for activating the air gap switch to halt power supply to the electrical circuit.

15. The switch of claim 14 wherein the cover plate has means to engage the air gap switch.

16. The switch of claim 14 wherein the cover plate is movable to toggle a lever disconnect switch, the cover plate having an arm for activating the lever.

17. The switch of claim 14 wherein the cover plate is movable for being pulled in or out to toggle a push button disconnect switch.

18. The switch of claim 1 further comprising means for lighting integrated with the switch.

19. A lighting system for use with an electrical component mounted in a wall box and having an electrical circuit passing therethrough, the lighting system comprising at least one light source, means to connect to a power supply integrated with the

electrical circuit, a mounting assembly for supporting the light source and the power supply and a controller for controlling the light source whereby the light source is turned on and off, or a sequence of lighting a single light source or multiple light sources is initiated or an intensity of the light source is varied.

20. The lighting system of claim 19 wherein an intensity of the light source is varied in response to power flow through the electrical circuit.

21. The lighting system of claim 19 wherein the light source controller is programmed to generate a lighting sequence or an intensity to attract attention.

22. The switch of claim 1 further comprising a remotely located controller in communication with the switch for remotely activating or operating the switch.

23. The switch of claim 1 further comprising a separate input for control by a slave non-contact sensor unit.

24. The switch of claim 1 further comprising an interference detector to improve noise immunity.

25. The switch of claim 1 wherein the processing unit has a software algorithm to improve noise immunity

26. A method for operating a device connected to an electrical circuit comprising:

providing an electrical box located having the electrical circuit passing therethrough;

providing a non-contact electrical switch in the electrical box and integrated with the electrical circuit, the switch having means for detecting a presence of an object adjacent to the switch and for generating a first data bit; a central processing unit connected to the presence detecting means and having means for receiving the data bit therefrom, and having signal processing means for calculating a power output in response to the first data bit and for generating a control signal for controlling power supplied to the electrical circuit.